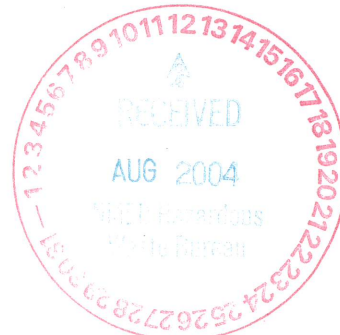




Department of Energy
Carlsbad Field Office
P. O. Box 3090
Carlsbad, New Mexico 88221

AUG 11 2004



Mr. Steve Zappe, WIPP Project Leader
Hazardous Waste Permits Program
New Mexico Environment Department
2905 E. Rodeo Park Drive, Bldg. 1
Santa Fe, NM 87505

Subject: Transmittal of Approved RFETS Waste Stream Profile Form Number RF 123.03
TRU Mixed Inorganic Solids

Dear Mr. Zappe:

The Department of Energy, Carlsbad Field Office (CBFO) has approved the Rocky Flats Environmental Technology Site (RFETS) Waste Stream Profile Form (WSPF) RF 123.03 TRU Mixed Inorganic Solids.

Enclosed is a copy of the approved form as required by Section B-4(b)(1) of the WIPP Hazardous Waste Facility Permit, No. NM4890139088-TSDF.

If you have any questions on this matter, please contact me at (505) 234-7357 or (505) 706-0066.

Sincerely,

Kerry W. Watson, Director
Office of Characterization and Transportation

Enclosure

cc: w/o enclosure
J. Kielling, NMED
C. Walker, TechLaw
M. Strum, WTS *ED
R. Chavez, WRES *ED
S. Calvert, CTAC *ED
L. Greene, WRES
WIPP Operating Record
CBFO M&RC

*ED denotes Electronic Distribution

040812



WIPP WASTE STREAM PROFILE FORM

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Waste Stream Profile Number: RF123.03Generator site name: RFETSTechnical contact: Eric D'AmicoGenerator site EPA ID: CO7890010526Phone number: (303) 966-5362

Date of audit report approval by NMED: March 9, 2000 as amended February 6, 2001; May 24, 2001; June 5, 2001; April 5, 2002; April 8, 2002; August 20, 2002; August 29, 2002; December 20, 2002; April 8, 2003; September 19, 2003; December 30, 2003; and July 14, 2004

Title, version number, and date of documents used for WAP certification: Rocky Flats Environmental Technology Site TRU Waste Characterization Program Quality Assurance Project Plan, 95-QAPJP-0050, Version 9, February 2004.

Transuranic (TRU) Waste Management Manual, 1-MAN-008-WM-001, Version 7, February 2004. Contact-Handled

Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant, Revision 1.0. March 2004.

Did your facility generate this waste? ☒ Yes ☐ No If no, provide the name and EPA ID of the original generator:

Waste Stream Information⁽¹⁾WIPP ID: RF123.03⁽²⁾Summary Category Group: S3000⁽²⁾Waste Matrix Code Group: Solidified Inorganics⁽²⁾Waste Stream Name: TRM Inorganic Solids (D006, D007, D008, D009)⁽²⁾Description from the WTWBIR: This waste stream includes miscellaneous inorganic solids.⁽²⁾Defense TRU Waste: ☒ Yes ☐ NoCheck one: ☒ CH ☐ RH Number of SWBs N/A Number of Drums 58 Number of Canisters N/ABatch Data Report numbers supporting this waste stream characterization: See Table 7.List applicable EPA Hazardous Waste Codes⁽³⁾: D006, D007, D008, D009

Applicable TRUCON Content Codes:

RF130A/230A, RF130B/230B, RF130BA/230BA, RF130D/230D,
RF130DF/230DF, RF130E/230E, RF130F/230F, RF130G/230G, RF130GF/230GF, RF130H/230H, RF130I/230I,
RF130J/230J, RF130K/230K, RF130N/230N, RF130SF/230SF, RF130T/230T, RF130U/230U, RF130V/230V,
RF130VF/230VF

Acceptable Knowledge Information⁽¹⁾**Required Program Information**

- Map of site: Reference List, No. 3
- Facility mission description: Reference List, No. 3
- Description of operations that generate waste: Reference List, Nos. 1, 2, 3, 6
- Waste identification/categorization schemes: Reference List, Nos. 13, 14
- Types and quantities of waste generated: Reference List, Nos. 1, 2, 3, 6
- Correlation of waste streams generated from the same building and process, as appropriate: Reference List, Nos. 1, 2, 6
- Waste certification procedures: Reference List, No. 5

Required Waste Stream Information

- Area(s) and building(s) from which the waste stream was generated: Reference List, Nos. 1, 2, 6
- Waste stream volume and time period of generation: Reference List, Nos. 4, 6
- Waste generating process description for each building: Reference List, Nos. 1, 2, 6
- Process flow diagrams: Reference List, Nos. 1, 2
- Material inputs or other information identifying chemical/radionuclide content and physical waste form: Reference List, Nos. 1, 2, 3, 6

- Which Defense Activity generated the waste: (Check one) Reference List, No. 3

- | | |
|--|---|
| <input checked="" type="checkbox"/> Weapons activities including defense inertial confinement fusion | <input type="checkbox"/> Naval Reactors development |
| <input type="checkbox"/> Verification and control technology | <input type="checkbox"/> Defense research and development |
| <input type="checkbox"/> Defense nuclear waste and material by products management | <input type="checkbox"/> Defense nuclear materials production |
| <input type="checkbox"/> Defense nuclear waste and materials security and safeguards and security investigations | |

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Supplemental Documentation:

- Process design documents: Note 4
- Standard operating procedures: Note 4
- Safety Analysis Reports: Note 4
- Waste packaging logs: Note 4
- Test plans/research project reports: Note 4
- Site data bases: Note 4
- Information from site personnel: Note 4
- Standard industry documents: Note 4
- Previous analytical data: Note 4
- Material safety data sheets: Note 4
- Sampling and analysis data from comparable/surrogate Waste: Note 4
- Laboratory notebooks: Note 4

Sampling and Analysis Information⁽¹⁾*[For the following, when applicable, enter procedure title(s), number(s) and date(s)]*

- ☒ Radiography: Reference List, Nos. 21, 22, 23
- ☒ Visual Examination: Reference List, Nos. 17, 24, 25, 26
- ☒ Headspace Gas Analysis
 - VOCs: Reference List, No. 7, 19, 20
 - Flammable: Reference List, No. 7, 19, 20
 - Other gases (specify): N/A
- ☒ Homogeneous Solids/Soils/Gravel Sample Analysis
 - Total metals: Reference List, Nos. 10, 11, 12
 - PCBs: N/A
 - VOCs: Reference List, No. 8
 - Nonhalogenated VOCs: Reference List, No. 8
 - Semi-VOCs: Reference List, No. 9
 - Other (specify): N/A

Waste Stream Profile Form certification:

I hereby certify that I have reviewed the information in this Waste Stream Profile Form, and it is complete and accurate to the best of my knowledge. I understand that this information will be made available to regulatory agencies and that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.


Signature of Site Project ManagerG. A. O'Leary, Manager TRU Programs
Printed Name and Title7-28-04
Date
Signature of Site QA OfficerC. L. Ferrera, TWCP Site QAO
Printed Name and Title7-27-04
Date

- NOTE**
- (1) Use back of sheet or continuation sheets, if required.
 - (2) IDC 532 is a newly generated IDC for miscellaneous inorganic solids that did not fit into an existing IDC and thus is not specifically identified in the WTWBIR. However, the waste stream is similar to a combination of the following WTWBIR waste streams: RF-MR-0340, RF-MR-290, RF-MT-0290, RF-MT-0292, RF-MT-0299, and RF-MT-0409. Therefore, the WIPP ID corresponds to the Waste Stream Profile Number. The Waste Stream Name, Description, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on the acceptable knowledge for this waste stream (see attached Acceptable Knowledge Summary).
 - (3) EPA Hazardous Waste Codes were determined using acceptable knowledge and confirmed using solids and headspace gas sampling and analysis (see attached Characterization Information Summary documenting this determination).
 - (4) See the References section in the Acceptable Knowledge Summary (attached) for additional backup documentation associated with this waste stream.

REFERENCE LIST

1. Backlog Waste Reassessment Baseline Book, Waste Form 46, Particulate Sludge, May 2004.
2. Waste Stream and Residue Identification and Characterization (WSRIC), Version 7, June 2004, and archived versions.
3. RFETS TRU Waste Acceptable Knowledge Supplemental Information, RF/RMRS-97-018, Revision 13, May 2004.
4. Waste and Environmental Management System (WEMS) database.
5. Transuranic (TRU) Waste Certification, PRO-X05-WC-4018, Version 7, March 2004.
6. Acceptable Knowledge TRU/TRM Waste Stream Summaries, RMRS-WIPP-98-100, Section 7.26, Revision 0, June 2004.
7. GC/MS Determination of Volatile Organics Waste Characterization, L-4111-X, January 2002.
8. GC/MS Determination of Volatile Organic Compounds (Solids, Liquids, and TCLP Extracts), L-4165-M, March 2003.
9. GC/MS Determination of Total SVOCs for WIPP, L-4215-F, March 2003.
10. Waste Analysis by Atomic Absorption Spectroscopy, L-4151-L, October 2003.
11. Mercury Analysis in Waste (Cold-Vapor Technique), L-4152-L, October 2003.
12. Trace Metals by ICP Spectrometry (Solids, Liquids, and TCLP Extracts), L-4153-J, October 2003.
13. Waste Characterization, Generation, and Packaging, 1-PRO-079-WGI-001, Revision 4, May 2002.
14. Waste Characterization Program Manual, 1-MAN-036-EWQA-Section 1.6.1, Revision 3, May 2002.
15. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile 023.01 Lot 1, TRG-167-04, June 2004.^(a)
16. Interoffice Memorandum from Thomas R. Gatliffe to Eric L. D'Amico, Statistical Solid Analysis Data Evaluation Report For Transuranic (TRU) Inorganic Homogeneous Solids Waste (Waste Stream Profile 023.01) Lot 1, TRG-150-04, May 2004.^(a)
17. TRU/TRM Waste Visual Verification (V²) and Data Review, PRO-1031-WIPP-1112, Version 3, March 2004.
18. Interoffice Memorandum from V. S. Sendelweck to E. L. D'Amico, Tentatively Identified Compounds in TRU Inorganic Solids Waste Lot 1, VSS-016-2004, April 2004.
19. Headspace Gas Sampling And Analysis Using An Automated Manifold, L-4231-F, March 2002.
20. Headspace Gas Sampling and Analysis Using An On-Line Integrated System, PRO-1676-HGAS-S&A, Version 2, January 2004.
21. Real-Time Radiography Testing of Transuranic and Low-Level Waste, 4-W30-NDT-00664, Version 10, March 2004.
22. Real-Time Radiography Testing of Transuranic and Low-Level Waste in Building 569, 4-I19-NDT-00569, Revision 5, January 2002.
23. Mobile Real-Time Radiography Testing of Transuranic and Low-Level Waste, PRO-1520-Mobile-RTR, Version 3, March 2004.
24. Glovebox and C-Cell Waste Operations, PRO-1358-440-VERP, Version 6, March 2004.
25. RTR Visual Examination Confirmation, Building 371, PRO-1608-VECRR-371, Revision 0, October 2002.
26. Visual Examination for Confirmation of RTR, 4-H80-776-ASRF-007, Revision 5, June 2001.
27. Interoffice Memorandum from E. L. D'Amico to WIPP Records, Solid Sampling Control Chart Effectiveness Evaluation for Waste Stream RF023.01, ELD-041-04, April, 2004.^(a)

^(a) The Waste Stream Profile Number was changed from RF023.01 to RF123.03 when the waste stream was recharacterized as mixed waste.

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Form A

Reconciliation with Data Quality Objectives

I certify by signature (below) that sufficient data have been collected to determine the following Program-required waste parameters:

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Item	Check Box ^a	Reconciliation Parameter
1	✓	Waste Matrix Code as reported in WEMS.
2	✓	Waste Material Parameter Weights for individual containers as reported in WEMS.
3	✓	The waste matrix code identified is consistent with the type of sampling and analysis used to characterize the waste.
4	✓	Container mass and activities of each radionuclide of concern as reported in WEMS.
5	✓	Each waste container of waste contains TRU radioactive waste.
6	✓	Mean concentrations, UCL ₉₀ for the mean concentrations, standard deviations, and the number of samples collected for each VOC in the headspace gas of waste containers in the waste stream/waste stream lot.
7	✓	Mean concentrations, UCL ₉₀ for the mean concentrations, standard deviations, and number of samples collected for VOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
8	✓	Mean concentrations, UCL ₉₀ for the mean concentrations, standard deviations, number of samples collected for SVOCs in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
9	✓	Mean concentrations, UCL ₉₀ for the mean concentrations, standard deviations, and number of samples collected for metals in the waste stream/waste stream lot. Summary Categories S3000 and S4000.
10	✓	Sufficient number of samples was taken to meet statistical sampling requirements.
11	✓	Only validated data were used in the above calculations, as documented through the site data review and validation forms and process.
12	✓	Waste containers were selected randomly for sampling, as documented in site procedures.
13	✓	The potential flammability of TRU waste headspace gases.
14	✓	Sufficient number of waste containers was visually examined to determine with a reasonable level of certainty that the UCL ₉₀ for the misclassification rate is less than 14 percent.
15	✓	Whether the waste stream exhibits a toxicity characteristic (TC) under 40 CFR Part 261, Subpart C.
16	✓	All TICs were appropriately identified and reported in accordance with the requirements of the WIPP WAP prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
17	✓	The overall completeness, comparability, and representativeness QAOs were met for each of the analytical and testing procedures as specified in the WIPP WAP Sections B3-2 through B3-9 prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
18	✓	The RTLs (i.e., PRQLs) for all analyses were met prior to submittal of a waste stream profile form for a waste stream or waste stream lot.
19	✓	Appropriate packaging configuration and DAC were met and documented in the headspace gas sampling documentation and the drum age was met prior to sampling.
20	✓	Whether the waste stream can be classified as hazardous or non-hazardous at the 90-percent confidence limit.

^a Check (✓) indicates that data or acceptable knowledge are sufficient to determine the waste parameters and that the waste parameters have been reported in the listed document or database. N/A indicates parameter does not apply to waste stream. NO indicates data are insufficient.

Signature of Site Project Manager

G. A. O'Leary

Printed Name

Date

7-28-04

Data Summary Report—Table 1: Solid Sampling Summary

WSPF # RF123.03

Determination of Number of Retrievably Stored Waste Containers to Sample (S3000,S4000)

Preliminary Estimates of Mean, Variance, and Coefficient of Variation:

Attach a table(s) that correlates container identification numbers to data packages if different from containers used for characterization.

Description of Source Data: Preliminary samples were collected and analyzed in compliance with all requirements (specified in the WIPP Waste Analysis Plan Section B2-2a) for being counted as part of the total number of calculated required samples. Sufficient preliminary samples were collected to demonstrate sampling sufficiency – i.e., collection of additional samples other than the preliminary samples was not required. See Reference List, No 16.

Samples Randomly Selected from Waste Stream (yes/no)? Yes.

Treatment of less-than-detectable measurements: This pertains only to data for analytes in which at least one detectable measurement was obtained. Data were evaluated using one half the method detection limit (MDL) for less-than-detectable observations. See Reference List, No. 16.

Analytes that are listed spent solvents and therefore not included in the calculation to determine the number of containers to sample: None.

Largest Calculated Sample Size selection and associated analyte: Pertains only to toxicity characteristic or listed waste analytes and only to those analytes where the associated EPA hazardous waste number is not assigned (i.e., it only applies to those cases where a site intends to establish that the constituent is below the regulatory threshold and the associated EPA hazardous waste number does not apply). Largest value is 0.725 for chloroform.

Minimum number of containers to sample: 5 (based on WIPP Waste Analysis Plan Section B2-2a requirement that preliminary estimates be based on samples from a minimum of 5 waste containers).

Attach preliminary estimates: See Reference List, No. 16. Preliminary estimates are identical to final results because sufficient preliminary samples were collected and analyzed in compliance with all requirements for being used as required samples.

Data Summary Report—Table 1: Solid Sampling Summary (continued)

Retrievably Stored Waste Sampling Results

Analytes that are listed spent solvents and therefore not included in the UCL₉₀ estimate calculation to determine the toxicity characteristic: None.

Largest Calculated Sample Size and associated analyte: Pertains only to toxicity characteristic or listed waste analytes and only to those analytes where the associated EPA hazardous waste number is not assigned (i.e., it only applies to those cases where a site intends to establish that the constituent is below the regulatory threshold and the associated EPA hazardous waste number does not apply). Largest value is 0.725 for chloroform.

Comparison of largest calculated sample size with largest calculated sample size selected from preliminary estimate: 0.725 vs. 0.725 (for chloroform).

Treatment of less-than-detectable measurements: This pertains only to data for analytes in which at least one detectable measurement was obtained. Data were evaluated using one half the method detection limit (MDL) for less-than-detectable observations. See Reference List, No. 16.

Transformations applied to data and justification: Logarithmic or Square Root transformations were applied to the data as necessary to achieve (or better achieve) a normal probability distribution of the data for UCL₉₀ comparison to RTL values.

Drums overpacked for shipment/WWIS tracking (Yes/No)? No.

If yes, overpack container identification number: _____

Sampled drums included in waste stream lot reported here (Yes/No)? Yes.

If no, WSPF # including sampled drums: _____

Newly Generated Waste Sampling Results

Batch or continuous process? N/A^a

Samples randomly selected from Waste Stream? (yes/no) N/A^a

Sample locations (part of process): N/A^a

Treatment of less-than-detectable measurements: N/A^a

Transformations applied to data and justification: N/A^a

NOTES:

- ^a Control charting for this waste stream was determined not to be applicable and sampling and analysis was conducted using the retrievably-stored characterization strategy (see Reference No. 27).

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Data Summary Report—Table 2: Headspace Gas Summary Data

WSPF # RF123.03

Sampling and Analysis Method (check one):

☐ 100% Sampling

☒ Reduced Sampling

2A

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^a	Min. Sample Size ^a	Max. Value (ppmV)	Mean ^a	Std. Dev. ^a	UCL ^a	Transformed RTL ^a	Un-Transformed RTL ^a (ppmV)	EPA Code ^f
1,1-Dichloroethane	0				2.6	1.279				10	
1,2-Dichloroethane	0				2.7	1.267				10	
1,1-Dichloroethylene	0				3.2	1.308				10	
cis-1,2-Dichloroethylene	0				3.2	1.454				10	
trans-1,2-Dichloroethylene	0				2.5	1.192				10	
1,1,2,2-Tetrachloroethane	0				3.4	1.263				10	
1,1,1-Trichloroethane	0				2.9	1.421				10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0				2.6	1.096				10	
1,2,4-Trimethylbenzene	0				2.4	1.2				N/A	
1,3,5-Trimethylbenzene	0				2.9	1.158				N/A	
Acetone	0				36	14.208				100	
Benzene	0				2.7	1.175				10	
Bromoform	0				2.3	1.15				10	
Butanol	0				33	12.417				100	
Carbon disulfide	0				3.6	1.479				10	
Carbon tetrachloride	0				2.9	1.45				10	
Chlorobenzene	0				2.8	0.963				10	
Chloroform	7	None	Fail ^b	0.002	10	4.288	3.259	5.57	N/A	10	
Cyclohexane	0				3.4	1.467				N/A	
Ethyl benzene	0				2.1	0.992				10	
Ethyl ether	0				3.5	1.488				10	
Methanol	1	Log	Fail ^b	N/A	92	2.631	0.637	2.882	4.605	100	
Methyl ethyl ketone	0				34	14.667				100	
Methyl isobutyl ketone	0				25	10.75				100	
Methylene chloride	0				3.0	1.383				10	
o-Xylene	0				2.6	1.125				10	
m,p-Xylene	0				4.9	2.071				10	
Tetrachloroethylene	0				2.5	1.25				10	
Toluene	4	Log	Fail ^b	0.0214	5.1	0.629	0.504	0.828	4.2769	72.02 ^h	
Trichloroethylene	0				2.4	1.054				10	

NOTES:

^a A total of 12 samples were collected and analyzed. Analysis was performed for all analytes identified. Samples were not composited.

^b Identifies the number of samples in which the associated analyte was detected.

^c Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.

Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

NOTES (continued):

- ^d Statistics calculated based on using $\frac{1}{2}$ the MDL for less-than-detectable observations with data transformation as identified (Reference 15). When transformation was applied, the Mean and UCL₉₀ values presented are the transformed values (Reference 15). With no detectable concentrations, listed mean reflects average of one-half of reported MDL values for analyte and calculation of standard deviation and UCL₉₀ values is not meaningful. With fewer than five detectable concentrations, calculated values for UCL₉₀ are subject to potentially large relative error.
- ^e RTLs for headspace gas analysis results correspond to the analyte PRQL for analytes that are WIPP WAP target analytes. "NA" means the analyte is not a WIPP WAP target analyte, but instead a flammable VOC that is analyzed for compliance with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC).
- ^f No entry indicates that the applicable UCL₉₀ value did not exceed the associated RTL.
- ^g Data set (with or without transformation) did not pass the test for normality. The data set that most approximated a normal distribution was used for computation of statistics.
- ^h Limit used for evaluation of EPA Hazardous Waste Code for toluene (Reference No. 3).

Data Summary Report—Table 2: Headspace Gas Summary Data (continued)

WSPF # RF123.03

2B

TENTATIVELY IDENTIFIED COMPOUND (TIC)	Maximum Observed Estimated Concentrations (ppmV)	# Samples Containing TIC
No TICs identified in the headspace gas samples for the waste stream lot.		

Did the data verify the acceptable knowledge? ☒ Yes ☐ No

Data as reported in Data Summary Report – Table 2 confirms acceptable knowledge in that no toxicity characteristic organic or F-listed solvent EPA codes are applicable.

If not, describe the basis for assigning the EPA Hazardous Waste Codes:

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Data Summary Report—Table 3: Metals Summary Data

WSPF # RF123.03

Sampling and Analysis Method/Units (check one):

☒ Totals (units are in mg/kg)

☐ TCLP (units are in mg/l)

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^d	Min. Sample Size ^d	Mean ^d	UCL ₉₀ ^d	Transformed RTL ^e	Un-Transformed RTL ^e (mg/kg)	EPA Code ^f
Antimony	3	Log	Fail ^h	2.401	3.184	3.88	4.605	100	
Arsenic	1	None	Fail ^h	0.004	14.1	15.903	N/A	100	
Barium	5	Log	Pass	0.051	2.572	2.93	7.601	2000	
Beryllium ^g	4	Log	Fail ^h	0.027	-0.049	0.192	4.605	100	
Cadmium	10	Sq. Rt.	Pass	4.033	6.51	7.804	4.472	20	D006
Chromium	10	None	Pass	0.598	1036.9	1266.065	N/A	100	D007
Lead	10	Log	Pass	2.324	6.199	6.967	4.605	100	D008
Mercury	9	Log	Pass	601.627	1.503	2.407	1.386	4	D009
Nickel	10	None	Pass	0.596	9812.3	12184.05	N/A	100	None
Selenium	0				0.498			20	
Silver	9	Sq. Rt.	Pass	0.403	4.658	5.731	10	100	
Thallium	5	Sq. Rt.	Pass	0.250	5.04	5.825	10	100	
Vanadium	3	Log	Pass	0.119	2.12	2.392	4.605	100	
Zinc	10	Log	Pass	0.396	8.588	9.380	4.605	100	None

Did the data verify the acceptable knowledge? ☐ Yes ☒ No

If not, describe the basis for assigning the EPA Hazardous Waste Codes.

Data as reported in Data Summary Report – Table 3 did not confirm acceptable knowledge in that additional toxicity characteristic metal EPA codes D006 (cadmium), D007 (chromium), D008 (lead) and D009 (mercury) are applicable. No EPA Codes were initially assigned to this waste stream based on acceptable knowledge (see attached AK Summary). EPA Codes D006, D007, D008, and D009 were added based on homogeneous solids sampling and analysis (see Reference List, No 16).

NOTES:

- ^a A total of 10 samples were collected and analyzed. Analysis was performed for all analytes identified.
- ^b Identifies the number of samples in which the associated analyte was detected.
- ^c Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.
- ^d Statistics calculated based on using ½ the MDL values for all less-than-detectable observations with data transformation as identified (Reference 16). When transformation was applied, the Mean and UCL₉₀ values presented are the transformed values (Reference 16). No entry indicates no detectable measurements available for statistics.
- ^e RTLs correspond to the analyte PRQL for analytes that are not characteristic hazardous waste constituents.
- ^f No entry indicates that the applicable UCL₉₀ value did not exceed the associated RTL.

Data Summary Report—Table 3: Metals Summary Data (continued)

NOTES (continued):

- ^a The EPA hazardous waste number P015, beryllium powder, is not applicable to this waste stream. The applicable regulations controlling the identification of U and P listed hazardous wastes are given in 40 CFR 261.33, Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residues Thereof. Within this regulation, it states that "The phrase 'commercial chemical product or manufacturing chemical intermediate having the generic name listed in...' refers to a chemical which is manufactured or formulated for commercial or manufacturing use which consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulations in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in paragraph (e) or (f). Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in paragraph (e) or (f), such waste will be listed in either Sec. 261.31 or Sec. 261.32 or will be identified as a hazardous waste by the characteristics set forth in subpart C of this part." Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred. As a result beryllium is present in the solidified inorganic waste. The beryllium is present as a contaminant of the process and not as unused commercial chemical product, and therefore is not a P015-listed waste.
- ^b Data transformation did not pass the test for normality. The data transformation that most approximated a normal distribution was used for computation of statistics.

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Data Summary Report—Table 4: Total VOC Summary Data

WSPF # RF123.03

4A

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^d	Min. Sample Size ^d	Mean ^d	UCL ₉₀ ^d	Transformed RTL ^e	Un-Transformed RTL ^e (mg/kg)	EPA Code ^f
1,1-Dichloroethylene	0				0.5			14	
trans-1,2-Dichloroethylene	0				0.5			10	
1,2-Dichloroethane	0				0.5			10	
1,1,1-Trichloroethane	0				0.5			10	
1,1,2-Trichloro-1,2,2-Trifluoroethane	0				0.5			10	
1,1,2-Trichloroethane	0				0.5			10	
1,1,2,2-Tetrachloroethane	0				0.5			10	
Acetone	0				5			100	
Benzene	0				0.5			10	
Bromoform	0				0.5			10	
Butanol	0				5			100	
Carbon disulfide	0				0.5			10	
Carbon tetrachloride	0				0.5			10	
Chloroform	8	Log	Pass	0.725	0.728	1.152	4.787	120	
Chlorobenzene	0				0.5			10	
Chloromethane	9	Sq. Rt.	Pass	0.114	1.504	1.681	3.162	10	
Ethyl benzene	0				0.5			10	
Ethyl ether	0				5			100	
Isobutanol	0				5			100	
Methanol	0				5			100	
o-Xylene	0				0.5			10	
m,p-Xylene	0				0.5			10	
Methyl ethyl ketone	0				5			100	
Methylene chloride	0				0.5			10	
Tetrachloroethylene	0				0.5			10	
Toluene	1	None	Fail ^g	0.001	0.58	0.691	N/A	10	
Trichloroethylene	0				0.5			10	
Trichlorofluoromethane	0				0.5			10	
Vinyl chloride	0				0.5			4	

NOTES:

- ^a A total of 10 samples were collected and analyzed. Analysis was performed for all analytes identified.
- ^b Identifies the number of samples in which the associated analyte was detected.
- ^c Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.
- ^d Statistics calculated based on using ½ the MDL values for all less-than-detectable observations with data transformation as identified (Reference 16). No entry indicates no detectable measurements available for statistics.
- ^e RTLs correspond to the analyte PRQL for analytes that are F-listed hazardous waste constituents or to the applicable total RTL value as calculated from the TC RTL. RTLs correspond to the analyte PRQL for analytes that are not F-listed or characteristic hazardous waste constituent.

Data Summary Report—Table 4: Total VOC Summary Data (continued)**NOTES (continued):**

- ^f No entry indicates that the applicable UCL_{90} value did not exceed the associated RTL.
- ^g Data transformation did not pass the test for normality. The data transformation that most approximated a normal distribution was used for computation of statistics.

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Data Summary Report—Table 4: Total VOC Summary Data (continued)

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4B

TENTATIVELY IDENTIFIED COMPOUND (TIC) CHEMICAL ABSTRACTS SERVICE (CAS) Number	Maximum Observed Estimated Concentrations (mg/kg)	# Samples Containing TIC
No TICs identified in the solid VOC samples for the waste stream lot.		

Did the data verify acceptable knowledge? ☒ Yes ☐ No

Data as reported in Data Summary Report – Table 4 confirm acceptable knowledge in that no toxicity characteristic organic or F-listed solvent EPA codes, are applicable.

If no, describe the basis for assigning EPA Hazardous Waste Codes.

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Data Summary Report—Table 5: Total SVOC Summary Data

WSPF # RF123.03

5A

ANALYTE ^a	# Samples ^b	Transform Applied ^c	Normality Test (Pass/Fail) ^d	Min. Sample Size ^d	Mean ^d	UCL ₉₀ ^d	Transformed RTL ^e	Un-Transformed RTL ^e (mg/kg)	EPA Codes ^f
Acetophenone	0				0.5			10	
1,2-Dichlorobenzene	0				0.5			10	
1,4-Dichlorobenzene	0				0.5			150	
2,4-Dinitrophenol	0				0.5			40	
2,4-Dinitrotoluene	0				0.1			2.6	
2-Methylphenol (o-Cresol)	0				0.5			40	
3,4,4-Methylphenol (m,p-Cresol)	0				0.5			40	
Hexachlorobenzene	1	Log	Fail ^g	0.096	-2.087	-1.79	0.956	2.6	
Hexachloroethane	0				0.5			60	
Nitrobenzene	0				0.5			40	
Pentachlorophenol	0				0.5			2,000	
Pyridine	0				0.5			100	

NOTES:

^a A total of 10 samples were collected and analyzed. Analysis was performed for all analytes identified.

^b Identifies the number of samples in which the associated analyte was detected.

^c Identifies the type of data transformation used, if applicable, to achieve (or better achieve) a normal probability distribution of the data.

^d Statistics calculated based on using ½ the MDL values for all less-than-detectable observations with data transformation as identified (Reference 16). No entry indicates no detectable measurements available for statistics.

^e RTLs correspond to the analyte PRQL for analytes that are F-listed hazardous waste constituents or to the applicable total RTL value as calculated from the TC RTL. RTLs correspond to the analyte PRQL for analytes that are not F-listed hazardous waste constituents or characteristic hazardous waste constituents.

^f No entry indicates that the applicable UCL₉₀ value did not exceed the associated RTL.

^g Data transformation did not pass the test for normality. The data transformation that most approximated a normal distribution was used for computation of statistics.

Data Summary Report—Table 5: Total SVOC Summary Data (continued)

WSPF # RF123.03

5B

TENTATIVELY IDENTIFIED COMPOUND (TIC) CHEMICAL ABSTRACTS SERVICE (CAS) Number	Maximum Observed Estimated Concentrations (mg/kg)	# Samples Containing TIC
trans-1,3-Dichloropropene (CAS No. 10061-02-6)	1.4	2
Toluene (CAS No. 108-88-3)	1.5	2
1,2-Benzenedicarboxylic Acid, Bis(2-ethylhexyl) Ester (CAS No. 117-81-7) ^a	15	5
Fluoranthene (CAS No. 206-44-0)	2.3	1
1,3-Dichloropropene (CAS No. 542-75-6)	0.65	1
Pentachloroethane (CAS No. 76-01-7) ^(b)	2.6	9
1,1,2-Trichloroethane (CAS No. 79-00-5) ^(b)	57	9
1,1,2,2-Tetrachloroethane (CAS No. 79-34-5) ^(b)	23	9
1,2-Benzenedicarboxylic Acid, Diethyl Ester (CAS No. 84-66-2)	0.5	1
1,2-Benzenedicarboxylic Acid, Dibutyl Ester (CAS No. 84-74-2) ^a	2.8	3
1,2,3-Trichloropropane (CAS No. 96-18-4) ^(b)	1.1	9

Did the data verify acceptable knowledge? ☒ Yes ☐ No

Data as reported in Data Summary Report – Table 5 confirm acceptable knowledge in that no toxicity characteristic organic or F-listed solvent EPA codes are applicable.

If no, describe the basis for assigning EPA Hazardous Waste Codes.

^a TIC is a constituent in an F-listed waste whose presence is attributable to waste packaging materials and so was not added to the target analyte list for the waste stream. TIC was determined not to be a listed hazardous waste based on comparison of the TIC identification to acceptable knowledge (see Reference No. 18).

^b TIC was detected in 25 percent or more of the samples and is listed in 40 CFR 261, Appendix VIII, but the TIC is identified as a volatile organic compound (VOC) in Method 8260B and as such was not added to the SVOC target analyte list. The TIC was not identified during the solid VOC analysis and so it was not added to the VOC target analyte list. The TIC was determined not to be a listed hazardous waste based on comparison of the TIC identification to acceptable knowledge (see Reference No. 18).

Data Summary Report—Table 6: Exclusion of Prohibited Items**WSPF # RF123.03**

The absence of prohibited items is documented through acceptable knowledge. Radiography or visual examination is performed on each container in this waste stream to verify the absence of the following prohibited items:

- Liquids
- Non-radionuclide pyrophoric materials
- Waste incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, or other wastes
- Explosives or compressed gases
- Waste exhibiting the characteristics of ignitability, corrosivity or reactivity
- Non-mixed hazardous waste

Newly generated waste is characterized by visual verification (VV) at the time of waste packaging using the visual examination (VE) technique unless the use of radiography in lieu of, or in combination with, visual verification is justified by any of the following criteria:

- Visual verification was conducted during packaging, but was unacceptable,
- Visual verification requires extensive handling of high gram content waste that results in high radioactive exposure for the VV personnel,
- Situations where waste packaging is conducted at numerous locations generating small quantities of transuranic waste requiring a large number of VV personnel, and/or
- Where waste was originally packaged as low-level waste, but subsequently determined to be transuranic.

Each container of waste is certified and shipped only after radiography and/or VE either:

- Did not identify any prohibited items in the waste container, or
- All prohibited items found in a waste container by radiography or VE are identified and corrected (i.e., eliminated or removed) through the site non-conformance reporting system.

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Data Summary Report—Table 7: Correlation
of Container Identification to Batch Data Reports

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Package No.	Radioassay Data Package	Solid Sample Batch No. ^a	Metals Data Package ^a	VOC Data Package ^a	SVOC Data Package ^a	Headspace Sample Batch No. ^b	Headspace VOC Data Package ^b	RTR Data Package ^c	VV Data Package ^d
D94920	CIQ-01-001								
DA1170	440IP1-DP-011504	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0207	HGAS-DP-00923	6T-1702	
DA1175	CIQ-01-001							MT-0017	
DA1402	569IP1-DP-111601					04W0208	HGAS-DP-00924	6T-1702	
DD0773	440IP1-DP-061404	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0272	HGAS-DP-00988	5T-0260	
DD1250	440IP1-DP-061504	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069				VV-776-00023
DD5185	440IP1-DP-061404	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069				VV-776-00026
DD5211	569IP1-DP-121802								VV-776-00026
DD5448	440IP1-DP-021904	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0168	HGAS-DP-00884		VV-776-00027
DD5790	569IP1-DP-121802								VV-776-00027
DD5811	569IP1-DP-121802					04W0185	HGAS-DP-00901		VV-776-00027
DD6179	569IP1-DP-121802					04W0155	HGAS-DP-00871		VV-776-00027
DD6180	440IP1-DP-061104	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0168	HGAS-DP-00884		VV-776-00027
DD6181	569IP1-DP-010203								VV-776-00028
DD6183	440IP1-DP-032604	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0206	HGAS-DP-00922		VV-776-00028
DD6184	440IP1-DP-032204	SL-SB-1005	MTLS-DP-00037	VOCS-DP-00048	SVOA-DP-00069	04W0210	HGAS-DP-00926		VV-776-00027
DD6185	569IP1-DP-121802								VV-776-00029
DD6186	569IP1-DP-012103					04W0168	HGAS-DP-00884		VV-776-00027
DD6194	569IP1-DP-012103					04W0210	HGAS-DP-00926		VV-776-00029
DD6197	440IP1-DP-061504	SL-SB-1005	MTLS-DP-00039	VOCS-DP-00048	SVOA-DP-00069	04W0213	HGAS-DP-00929		VV-776-00029
DD6452	440IP1-DP-040204	SL-SB-1005	MTLS-DP-00039	VOCS-DP-00048	SVOA-DP-00069				VV-776-00029

NOTES:

- ^a No entry indicates container was not selected or used for solid sampling.
- ^b No entry indicates container was not selected or used for headspace sampling.
- ^c No entry indicates visual verification (VV) at the time of waste packaging using the visual examination (VE) technique was performed for the container. None of the containers examined by RTR were selected for visual examination to confirm RTR.
- ^d No entry indicates container did not undergo VV at the time of waste packaging using the VE technique.

Acceptable Knowledge Summary

WSPF # RF123.03

RMRS-WIPP-98-100, Acceptable Knowledge TRU/TRM Waste Stream Summaries, Section 7.26, TRM Inorganic Solids (D006, D007, D008, D009) (attached).



Rocky Flats Environmental Technology Site

ACCEPTABLE KNOWLEDGE INFORMATION

**ACCEPTABLE KNOWLEDGE TRU/TRM
WASTE STREAM SUMMARIES**

RMRS-WIPP-98-100

Section 7.26

TRM Inorganic Solids

(D006, D007, D008, D009)

Profile No. RF123.03

Revision 2

Reviewed for Classification/UCNI

By: Unclassified Not UCNI

Reference Exemption Number CEX-032-00

Date: August 4, 2004

Approval signatures in Site Document Control history file

7.26 TRM Inorganic Solids (D006, D007, D008, D009)

Profile No. RF123.03

Acceptable Knowledge (AK) Waste Stream Summary

Waste Stream Name: TRM Inorganic Solids (D006, D007, D008, D009)

Generation Buildings: Buildings 371, 776/777, 779^(1,6)

Waste Stream Volume (Retrievably Stored): 6 55-gallon drums^(1,6)

Generation Dates (Retrievably Stored): August 1998 - November 1999^(1,6)

Waste Stream Volume (Newly Generated): 51 55-gallon drums^(1,6)

Generation Dates (Newly Generated): October 2001 - November 2002^(1,6)

Waste Stream Volume (Projected): 1 55-gallon drum⁽¹⁾

Generation Dates (Projected): September 2004⁽¹⁾

TRUCON Content Code⁽²⁾: RF130A/230A, RF130B/230B, RF130BA/230BA, RF130D/230D, RF130DF/230DF, RF130E/230E, RF130F/230F, RF130G/230G, RF130GF/230GF, RF130H/230H, RF130I/230I, RF130J/230J, RF130K/230K, RF130N/230N, RF130SF/230SF, RF130T/230T, RF130U/230U, RF130V/230V, RF130VF/230VF

Process Knowledge Demonstrates Flammable VOCs in Headspace < 500 ppm: Yes (see Section 7.26.6)

7.26.1 Transuranic Waste Baseline Inventory Report Information⁽³⁾

WIPP Identification Number(s): RF123.03

Summary Category Group: S3000 Waste Matrix Code Group: Solidified Inorganics

Waste Matrix Code: S3119 Waste Stream Name: TRM Inorganic Solids

Description from the WTWBIR: This waste stream includes miscellaneous inorganic solids.

NOTE: Item Description Code (IDC) 532 is a newly generated IDC for miscellaneous inorganic solids that did not fit into an existing IDC and thus is not identified in the Waste Isolation Pilot Plant (WIPP) Transuranic Waste Baseline Inventory Report (WTWBIR). However, the waste stream is similar to a combination of the following WTWBIR waste streams: RF-MR-0340, RF-MR-290, RF-MT-0290, RF-MT-0292, RF-MT-0299, and RF-MT-0409. Therefore, the WIPP ID corresponds to the Waste Stream Profile Number. The Waste Stream Name, Description, Summary Category Group, Waste Matrix Code Group, and Waste Matrix Code are based on the acceptable knowledge for this waste stream (see Section 7.26.2).

7.26.2 Waste Stream Description

Transuranic Mixed (TRM) Inorganic Solids assigned United States Environmental Protection Agency (EPA) Hazardous Waste Numbers D006-D009 consists of Miscellaneous Inorganic Solids IDC 532. This material was generated from various maintenance, cleanup and Decontamination and Decommissioning (D&D) operations, and is similar in material, physical form, and hazardous constituents, and is therefore considered a single waste stream. Table 7.26-1 presents the waste matrix code and waste material parameters for the TRM Inorganic Solids waste stream. ⁽⁴⁾

Table 7.26-1, TRM Inorganic Solids (D006-D009)

IDC	IDC Description	Waste Matrix Code	Waste Material Parameters	Weight % (Average)
532	Miscellaneous Inorganic Solids	S3119, Unknown/Other Inorganic Particulates	Other Inorganic Materials	100%

Note: The above Waste Material Parameter addresses the waste material proper and does not include internal packaging (e.g. inner bags, inner cans), container packaging (e.g. fiberboard liner), absorbent (inorganic), secondary wastes, etc.

IDC 532, Miscellaneous Inorganic Solids: This material includes miscellaneous inorganic solids (e.g. dried inorganic sludge and particulate material) removed from gloveboxes, equipment, ducting and/or piping by various maintenance, cleanup and D&D activities. ^(5,7,8,9)

7.26.3 Areas of Operation

TRM Inorganic Solids assigned EPA Hazardous Waste Numbers D006-D009 were generated by the following defense operations in Buildings 371, 776/777, and 779: ^(5,6,7,8,9)

- Maintenance
- D&D Operations

7.26.4 Generation Processes

TRM Inorganic Solids assigned EPA Hazardous Waste Numbers D006-D009 were generated from various maintenance, cleanup and D&D operations in Buildings 371, 776/777 and 779 where dried sludge and particulate material was removed and segregated from gloveboxes, equipment, ducting and/or piping. These TRM Inorganic Solids were originally deposited during historical operations on site in support of weapons fabrication and manufacturing, plutonium recovery, waste treatment and residue repackaging activities. Process descriptions and flow diagrams can be found in the Waste Stream and Residue Identification and Characterization (WSRIC) Building Books. ^(5,6,7,8,9)

Section B-3a(1)(i) of the WIPP Waste Analysis Plan (WAP) allows for reduced headspace gas sampling for homogeneous solid waste streams with no volatile organic compound (VOC)-related Hazardous Waste Codes. Specifically, a waste stream may qualify for reduced headspace gas sampling if it complies with the following three criteria:

- The waste stream or waste stream lot must consist of more than 10 containers.
- The waste stream must be a homogeneous solid waste stream that has no VOC-related Hazardous Waste Codes assigned to it.
- The results of the solid sampling and analysis must confirm that no VOC-related Hazardous Waste Codes should be assigned to the waste stream.

The TRM Inorganic Solids (D006-D009) waste stream complies with each of these criteria as follows:

- The waste stream consists of 58 containers of waste.⁽¹⁾
- The waste stream is a homogeneous solid that has no VOC-related Hazardous Waste Codes assigned to it.^(10,11)
- Reference 10 provides the documentation of the solid sampling and analysis results that confirmed no VOC-related Hazardous Waste Codes need to be assigned to this waste stream.⁽¹⁰⁾

7.26.5 Resource Conservation and Recovery Act (RCRA) Characterization

This waste stream is characterized as a mixed waste. The specific Backlog Waste Reassessment (BWR) Baseline Book Subpopulations and WSRIC Process Numbers associated with TRM Inorganic Solids assigned EPA Hazardous Waste Numbers D006-D009 are listed in the Waste and Environmental Management System (WEMS) AK Waste Stream Summary for Profile Number RF123.03.⁽⁴⁾

Visual examination of waste contents at the time of packaging and/or RTR is used to verify that the waste stream is not a liquid waste and does not contain explosives, non-radionuclide pyrophoric materials, compressed gases, or reactive waste. Therefore, this waste stream does not exhibit the characteristics of ignitability (D001), corrosivity (D002), or reactivity (D003).

RCRA-regulated solvents were not contaminants in the gloveboxes, equipment, ducting and/or piping that were cleaned to remove the miscellaneous inorganic solids.^(5,6,7,8,9)

Beryllium parts were used in the manufacture/assembly of weapons components, and residual beryllium contamination of plutonium parts may have occurred; therefore, the waste may have been contaminated with beryllium and residual quantities of beryllium may be present in the waste stream. Any beryllium present (less than 1 % by weight) is as a contaminant of the process and not as unused commercial chemical product, and therefore is not a P015-listed waste.^(7,10)

No discarded chemical products, off-specification species, chemical residues, and spill residues thereof [40 Code of Federal Regulations (CFR) 261.33] were included in this waste stream and no hazardous waste from specific sources (40 CFR 261.32) was generated at the site. Therefore no K, U, or P listings have been applied to this waste stream. ^(4,5,7,8,9)

The TRM Inorganic Solids were historically characterized as nonhazardous waste based on acceptable knowledge. Confirmatory solid samples were analyzed for total metal, VOC and semi-volatile organic compound (SVOC) constituents. Statistics were calculated based on using one-half the method detection limit (MDL) for less-than-detectable observations with data transformation applied where appropriate. Using this "WIPP directed" method, the calculated 90 percent upper confidence limit (UCL₉₀) of the mean concentrations did exceed the associated Regulatory Threshold Limit (RTL) value for cadmium, chromium, lead, and mercury. In accordance with the WIPP WAP, AK was revised to add EPA Hazardous Waste Codes D006-D009 to the waste stream. The Waste Stream Profile Number was changed from RF023.01 to RF123.03 when the waste stream was recharacterized as mixed waste. ^(5,10)

Headspace gas sampling and analysis of containers assigned to this waste stream by AK detected three VOCs (chloroform, methanol, and toluene). Statistics were calculated based on using one-half the MDL for less-than-detectable observations with data transformation applied where appropriate. Using this "WIPP directed" method, the calculated 90 percent upper confidence limit (UCL₉₀) of the mean concentrations for none of the analytes were found to exceed its associated program required quantitative limit (PRQL). Therefore, the headspace data confirms the acceptable knowledge characterization that no characteristic volatile organic or F-listed solvent EPA codes are applicable. ⁽¹¹⁾

7.26.6 Transportation

The payload containers in the waste stream must also comply with the TRUPACT-II Authorized Methods for Payload Control (TRAMPAC) requirements. Flammable VOCs, are expected to be less than 500 ppm in this waste stream based on the descriptions in the *BWR Baseline Book* and *WSRIC Building Books* and confirmed by HSG sampling. Therefore, flammable VOCs in the payload container headspace are not expected to exceed 500 ppm. ^(5,7,8,9,11)

7.26.7 Radionuclides

Table 7.26-2 summarizes the radionuclides that may be present in TRM Inorganic Solids assigned EPA Hazardous Waste Numbers D006-D009. ⁽⁴⁾

Table 7.26-2, TRM Inorganic Solids (D006-D009) Radionuclides

IDC	Description	Radionuclides	Rationale
532	Miscellaneous Inorganic Solids	WG Pu, Am-241, Am-243, DU, EU, Np-237	The sources of radionuclides in this waste stream originated from multiple TRU waste generating buildings.

Key:

WG Pu weapons-grade plutonium
Am-241 americium-241
Am-243 americium-243

DU depleted uranium
EU enriched uranium
Np-237 neptunium-237

7.26.8 References

1. Wastren 2004. Interoffice Memorandum from M. L. Johnson to Waste Records Center. Current and Projected Waste Volumes for TRM Inorganic Solids (D006-D009), Profile Number RF123.03, MLJ-042-2004, June 11, 2004.
2. RFETS 2004. Transuranic (TRU) Waste Management Manual, Version 7, 1-MAN-008-WM-001.
3. DOE 1995. Transuranic Waste Baseline Inventory Report, Revision 0. DOE/CAO-95-1121.
4. RMRS 2004. RFETS TRU Waste Acceptable Knowledge Supplemental Information. RF/RMRS-97-018, Revision 13.
5. RFETS 2004. Backlog Waste Reassessment Baseline Book, Waste Form 46, Particulate Sludge.
6. Waste and Environmental Management System (WEMS) database.
7. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 371, Version 7.0.
8. RFETS 2004. Waste Stream and Residue Identification and Characterization Building 776/777, Version 7.0.
9. RFETS 2002. Waste Stream and Residue Identification and Characterization Building 779, Version 6.0.
10. Interoffice Memorandum from Thomas R. Gatcliffe to Eric L. D'Amico, Statistical Solid Analysis Data Evaluation Report For Transuranic (TRU) Inorganic Homogeneous Solids Waste (Waste Stream Profile RF023.01) Lot 1, TRG-150-04, May 7, 2004.^(a)
11. Interoffice Memorandum from Thomas R. Gatcliffe to Eric L. D'Amico, Headspace Gas Analysis Data Evaluation Report For Waste Stream Profile RF023.01 (TRU Inorganic Homogeneous Solids) Lot 1, TRG-167-04, June 3, 2004.^(a)

^(a) The Waste Stream Profile Number was changed from RF023.01 to RF123.03 when the waste stream was recharacterized as mixed waste (see Section 7.26.5).